

5.4 Ellipses

Name _____ Date _____ Period _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the center, vertices, and foci of the ellipse with the given equation.

1) $\frac{x^2}{16} + \frac{y^2}{7} = 1$

1) _____

2) $\frac{y^2}{36} + \frac{x^2}{27} = 1$

2) _____

3) $9x^2 + 4y^2 = 36$

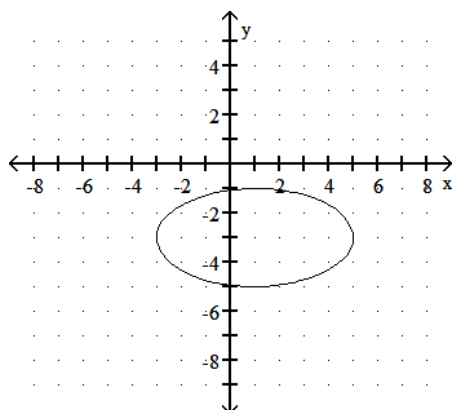
3) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Match the given graph with its equation.

4)

4) _____



A) $\frac{(x + 1)^2}{16} + \frac{(y - 3)^2}{4} = 1$

B) $\frac{(x + 1)^2}{4} + \frac{(y - 3)^2}{16} = 1$

C) $\frac{(x - 1)^2}{4} + \frac{(y + 3)^2}{16} = 1$

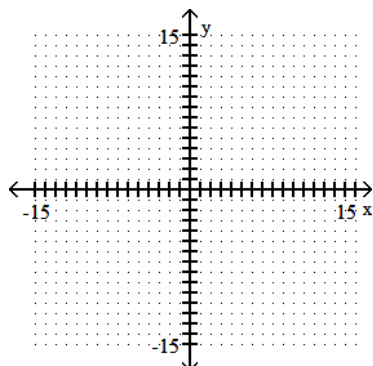
D) $\frac{(x - 1)^2}{16} + \frac{(y + 3)^2}{4} = 1$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Sketch the graph of the ellipse by hand.

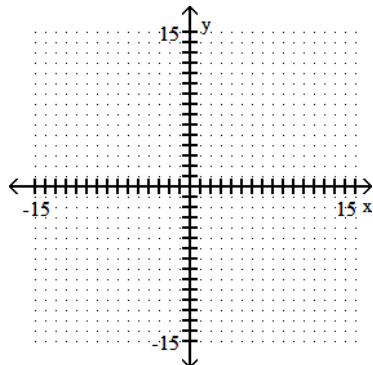
5) $\frac{x^2}{81} + \frac{y^2}{25} = 1$

5) _____



6) $\frac{(x+3)^2}{16} + \frac{(y-1)^2}{4} = 1$

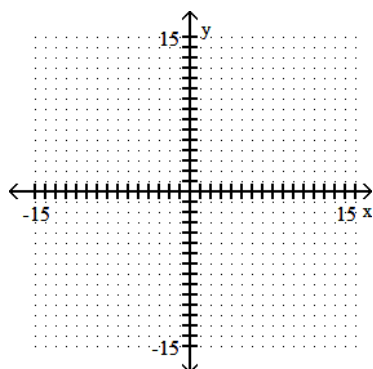
6) _____



Graph the ellipse using your calculator. (Remember to solve for y.)

7) $\frac{y^2}{64} + \frac{x^2}{16} = 1$

7) _____



Find an equation in standard form for the ellipse that satisfies the given conditions.

8) Minor axis length 4, major axis length 6 on y-axis

8) _____

9) Major axis length 10, and foci at $(0, \pm 3)$

9) _____

10) Major axis endpoints $(0, \pm 6)$, minor axis length 8

10) _____

11) Minor axis endpoints $(\pm 12, 0)$, major axis length 26

11) _____

12) An ellipse with foci at $(1, -4)$ and $(5, -4)$; major axis endpoints are $(0, -4)$ and $(6, -4)$

12) _____

13) An ellipse with major axis from $(-5, 2)$ to $(3, 2)$; minor axis length 6

13) _____

Find the center, vertices, and foci of the ellipse with the given equation.

14) $\frac{(x - 7)^2}{64} + \frac{(y + 3)^2}{81} = 1$

14) _____

Find the eccentricity of the ellipse.

15) $35x^2 + y^2 = 35$

15) _____

16) Prove that the graph of the equation is an ellipse and find its vertices, foci and eccentricity.

$9x^2 + 4y^2 - 18x + 8y - 23 = 0$

16) _____